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COMPUTER NETWORKS (GATE 2023) - REPORTS

OVERALL ANALYSIS | COMPARISON REPORT | SOLUTION REPORT

ALL(33) | CORRECT(23) | INCORRECT(10) | SKIPPED(0)

Q. 31 Solution Video | Have any Doubt ?

Which of the following is incorrect for FTP application protocol?

A. FTP sends exactly one file over the data connection and then closes the data connection.

B. User provides user identification and password to server for authentication before establishing TCP connection. — Correct Option

Solution :
(b)
First, TCP connection established between client and server, then client send authentication details to server on this TCP (control) connection.

C. Port numbers 21 and 20 are default port numbers for control connection and data connection respectively in FTP.

D. In passive mode FTP, the client initiate the data connection to server. — Your answer is **IN-CORRECT**

QUESTION ANALYTICS +

Q. 32 Solution Video | Have any Doubt ?

Consider two hosts A and B are connected via a packet switch X. Data transmission rate of A is 10^7 bits per second and rate of X is 5×10^7 bits per second. Length of link from A to X is 500 meters and X to B is 1000 meters. The propagation speed of data on link is 2×10^8 meter per second. Switch X uses store and forward method. Let host A transfer a packet of size 2000 bits to B via X. The time taken by this frame to completely received at B is _____ microseconds.

247.5 — Your answer is **Correct**247.5

Solution :
247.5

$$A \xrightarrow[\frac{500\text{ m}}{2\times10^8\text{ m/s}} = 2.5\,\mu s]{} X \xrightarrow[\frac{1000\text{ m}}{2\times10^8\text{ m/s}} = 5\,\mu s]{} B$$

$$\text{Transmission time of } A = \frac{2000 \text{ bits}}{10^7 \text{ bits/sec}} = 200\,\mu s$$

$$\text{Transmission time of } X = \frac{2000 \text{ bits}}{5\times10^7 \text{ bits/sec}} = 40\,\mu s$$

X uses store and forward method.

$$\text{Total time} = 200 + 2.5 + 40 + 5 = 247.5\,\mu s$$

QUESTION ANALYTICS +

Q. 33 Solution Video | Have any Doubt ?

Consider four active nodes A, B, C and D are competing for access to a channel using slotted ALOHA. Assume each node has infinite number of packets to send and each node attempts to transmit in each slot with probability 0.5. The probability of node D succeeds in transmission for the first time in 4^{th} slot is _____. (Round off upto 3 decimal places)

0.05149 [0.051 - 0.052] — Correct Option

Solution :
0.05149 [0.051 - 0.052]
Probability of D to succeed in a slot

$$= P(1-P)^3 = \frac{1}{2}\left(1-\frac{1}{2}\right)^3 = \left(\frac{1}{2}\right)^4$$

Probability of D to not succeed in a slot

$$= 1-\left(\frac{1}{2}\right)^4$$

D does not succeeds in 1^{st}, 2^{nd} and 3^{rd} slot, and succeeds in 4^{th} slot, so probability

$$\left(1-\left(\frac{1}{2}\right)^4\right)^3\left(\frac{1}{2}\right)^4$$

$$P = \left[1-\left(\frac{1}{2}\right)\right]\left(\frac{1}{2}\right) = 0.05149$$

Your Answer is 0.062

QUESTION ANALYTICS +